



TITLE:

# <Note> Evidence of Cultural Differences in Diet between Two Neighboring Unit Groups of Chimpanzees in Mahale Mountains National Park, Tanzania

AUTHOR(S):

Sakamaki, Tetsuya; Nakamura, Michio; Nishida, Toshisada

---

CITATION:

Sakamaki, Tetsuya ...[et al]. <Note> Evidence of Cultural Differences in Diet between Two Neighboring Unit Groups of Chimpanzees in Mahale Mountains National Park, Tanzania. Pan Africa News 2007, 14(1): 3-5

ISSUE DATE:

2007-06

URL:

<http://hdl.handle.net/2433/143476>

RIGHT:

Copyright © Pan Africa News.

<NOTE>

## **Evidence of Cultural Differences in Diet between Two Neighboring Unit Groups of Chimpanzees in Mahale Mountains National Park, Tanzania**

*Tetsuya Sakamaki<sup>1</sup>, Michio Nakamura<sup>2</sup>,  
Toshisada Nishida<sup>3</sup>*

*1. Faculty of International Studies, Meiji Gakuin University, Japan*

*2. Graduate School of Science, Kyoto University, Japan*

*3. Japan Monkey Centre, Japan*

Assessing behavioral diversity is key to investigating the existence of culture in wild chimpanzees and determining their ability to adapt to various environments<sup>1</sup>. However, most evidence of behavioral diversity among chimpanzees has come from comparisons of distantly separated populations<sup>2</sup>. Although a few reports have suggested differences in social customs between two neighboring unit groups<sup>3,4</sup>, these studies were retrospective comparisons using photographs. Thus, a need exists to investigate whether any behavioral differences occur between neighboring groups sharing a similar environment. We report preliminary evidence of new feeding habits by chimpanzees that we are habituating, habits that differ from those of a neighboring group in the Mahale Mountains National Park, Tanzania.

### **A new unit group under habituation**

Several different unit groups of chimpanzees live in Mahale Mountains National Park. Intense studies of two neighboring unit groups, in particular the K and M groups, have been conducted since 1965<sup>5</sup>. The K group was declared extinct in the 1980s, leaving the M group as the only habituated chimpanzees in the park<sup>6</sup>. However, one adult male of the K group, Limongo, was observed in the former range of the K group in the 1980s and 1990s<sup>7</sup>. In the late 1990s, unhabituated chimpanzees were observed and heard occasionally in the former range of the K group<sup>8</sup>.

We started habituating these chimpanzees in 2005. After two observational periods (September

2005–February 2006 and September 2006–December 2006), we concluded that the group we were habituating was different from the former K group because we were unable to positively confirm individuals from the former K group, such as Limongo. Thus, we named this group the Y group (representing the Miyako group). Judging from some indirect evidence so far, such as vocalizations and food remnants, we assumed that the Y group occupied about the half of the former K-group range. Although the maximum number of individuals directly observed at any one time was eight, we heard loud calls exchanged from other parties. Based on these calls, we estimated a group size of about 50 chimpanzees.

#### **Evidence of feeding on wood-boring ants, *Camponotus brutus***

In October 2005, we noticed *Camponotus brutus* ants in the feces of Y-group chimpanzees. These large reddish ants inhabit the ranges of both the M and Y group; however, the M group chimpanzees only rarely eat them. The ants are extremely aggressive and powerful, making it difficult to catch and eat them without getting hurt. The chimpanzees typically eat a related species, *C. vividus*, using a strip of bark fiber or other item as a tool to fish them out of their tunnels<sup>9</sup>.

In the 2006 season, however, we identified *C. brutus* ants in at least 21 of 41 fecal samples, suggesting that the ants are a common food item for Y-group chimpanzees. We have not yet confirmed their feeding techniques, but given the aggressive nature of these ants and the large number consumed, the chimpanzees may use some kind of tool to harvest these ants.

#### **Evidence of eating young stems of liana, *Cissus oliveri***

In September 2006, we found some unknown fibrous wadges from chimpanzees. We identified them in the field as a type of vine or liana, but could not specify the species. Later, we found half-chewed leaves that were similar to the wadges (Fig. 1). These were young stems of *Cissus oliveri* liana, which are rarely eaten by chimpanzees of the M and K groups<sup>10</sup>, even though the plant is abundant throughout most of their ranges. Throughout the remainder of the study period, we found 23 more wadges of *C. oliveri*,

suggesting that at least some chimpanzees of the Y group eat the young liana stems constantly and spit out the wadges.



Fig. 1. A wadge of young stems of *Cissus oliveri* liana, chewed and spit out presumably by a Y group chimpanzee

It is only natural to presume that potential food species are not very different among groups, considering that the range of the Y group is almost identical to the half of the former K-group range and is adjacent to and partly overlaps M group's range. We confirmed this with data on the diet of the K and M groups<sup>10</sup>. Therefore, our findings strongly suggest that the Y group has developed a different dietary preference that cannot simply be explained by the availability of food species. Moreover, the relative abundance of these new food items throughout the range indicates that they are consumed in common by Y group members.

In future work, we need to confirm (via direct observation) the techniques with which the Y-group chimpanzees harvest and eat these new food items. Although we are still in the process of habituating and identifying individual chimpanzees of this group, we expect to find more behavioral diversity across neighboring unit groups.

**Acknowledgments.** This research was financially supported by a Grant for the Biodiversity Research of the 21<sup>st</sup> Century COE (A14) and MEXT (16255007 and 19255008 to TN and 16770186 to MN). We thank the COSTECH, TAWIRI, TANAPA, MMNP, and MMWRC for permission to conduct the fieldwork and for logistical support.

#### **REFERENCES**

1. Boesch C, Hohmann G, Marchant LF (eds) 2002. *Behavioural diversity in chimpanzees and bonobos*. Cambridge University Press, Cambridge, UK.
  2. Whiten A, Goodall J, McGrew WC, Nishida T, Reynolds V, Sugiyama Y, Tutin CEG, Wrangham RW, Boesch C 1999. Cultures in chimpanzees. *Nature* 399: 682–685.
  3. McGrew WC, Marchant LF, Scott SE, Tutin CEG 2001. Intergroup differences in a social custom of wild chimpanzees: The grooming hand-clasp of the Mahale Mountains. *Curr Anthropol* 42: 148–153.
  4. Nakamura M, Uehara S 2004. Proximate factors of two types of grooming-hand-clasp in Mahale chimpanzees: Implication for chimpanzee social custom. *Curr Anthropol* 45: 108–114.
  5. Nishida T (ed) 1990. *The chimpanzees of the Mahale Mountains: Sexual and life history Strategies*. University of Tokyo Press, Tokyo.
  6. Nishida T, Hiraiwa-Hasegawa M, Hasegawa T, Takahata Y 1985. Group extinction and female transfer in wild chimpanzees in the Mahale National Park, Tanzania. *Z Tierpsychol* 67: 284–301.
  7. Uehara S, Nishida T, Takasaki H, Kitopeni R, Kasagula MB, Norikoshi K, Tsukahara T, Nyundo R, Hamai M 1994. A lone male chimpanzee in the wild: The survivor of a disintegrated unit-group. *Primates* 35: 275–281.
  8. Uehara S 2002. Evidence of the leaf-clipping behavior by chimpanzee of an unhabituated group at Mahale. *Pan Afr News* 9: 3–4.
  9. Nishida T, Hiraiwa M 1982. Natural history of a tool-using behavior by wild chimpanzees in feeding upon wood-boring ants. *J Hum Evol* 11: 73–99.
  10. Nishida T, Uehara S 1983. Natural diet of chimpanzees (*Pan troglodytes schweinfurthii*): Long-term record from the Mahale Mountains, Tanzania. *Afr Study Monogr* 3: 109–130.
-